Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Currently Amended) A method of treating cancer, wherein said cancer is prostate cancer, colon cancer, breast cancer, pancreatic cancer or lung cancer, comprising administering a G1 or S phase checkpoint activator to a subject in need thereof, wherein said checkpoint activator:

a) is an compound with a molecular weight of less than 5 kD;

b) does not damage DNA and does not stabilize microtubules;

c) is administered ~~such that~~ to elevate the expression of a member of the E2F family of transcription factors, selected from the group consisting of E2F-1, E2F-2 and E2F-3, ~~is elevated~~ to activate a G1 or S phase checkpoint in cancerous cells, but wherein said checkpoint activator is not toxic to and does not affect the viability of non-cancerous cells in said subject;

wherein said checkpoint activator is not β-lapachone.

2-3. (Cancelled)

4. (Previously Presented) The method of claim 1, wherein said checkpoint activator inhibits cellular proliferation.

5. (Previously Presented) The method of claim 1, wherein said checkpoint activator induces apoptosis.

6-8. (Cancelled)

9. (Previously Presented) The method of claim 1, wherein said checkpoint activator is selected from the group consisting of 3,4-dihydro-2,2-dimethyl-3-(3-methyl-2-butenyl)-2H-naphtho[1,2-b]pyran-5,6-dione, 3,4-dihydro-2,2-dimethyl-2H-naphtho[1,2-b]thiopyran-5,6-dione and 3,4-dihydro-4,4-dimethyl-2H-naphtho[1,2-b]thiopyran-5,6-dione.

10. (Previously Presented) The method of claim 1, wherein said subject is human.

11. (Previously Presented) The method of claim 1, wherein said checkpoint activator is administered parenterally.

12. (Previously Presented) The method of claim 1, wherein said checkpoint activator is administered intravenously.

13. (Previously Presented) The method of claim 1, wherein said checkpoint activator is administered orally.

14. (Previously Presented) The method of claim 1, wherein said checkpoint activator is administered topically.

15. (Previously Presented) The method of claim 1, wherein said checkpoint activator is administered in combination with a chemotherapeutic agent.

16. (Previously Presented) The method of claim 15, wherein said chemotherapeutic agent is selected from the group consisting of microtubule targeting drugs, topoisomerase poison drugs and cytidine analogue drugs.

17. (Previously Presented) The method of claim 15, wherein said chemotherapeutic agent is selected from the group consisting of paclitaxel, lovastatin, mimosine, tamoxifen, gemcitabine, araC, 5-fluorouracil (5-FU), methotrexate (MTX), docetaxel, vincristin, vinblastin, nocodazole, teniposide, etoposide, adriamycin, epothilone, navelbine, camptothecin, daunonibicin, dactinomycin, mitoxantrone, amsacrine, epirubicin and idarubicin.

18-34. (Cancelled)

35. (Currently Amended) A method of treating cancer, wherein said cancer is prostate cancer, colon cancer, breast cancer, pancreatic cancer or lung cancer, comprising administering a G1 ~~and/~~or S phase checkpoint activator to a subject in need thereof, wherein said checkpoint activator:

a) is an compound with a molecular weight of less than 5 kD;

b) does not damage DNA and does not stabilize microtubules; and

c) is administered ~~such that~~ to elevate the expression of a ~~member of the E2F family of transcription factors, selected from the group consisting of~~ E2F-1~~, E2F-2 and E2F-3~~ transcription factor, ~~is elevated~~ to ~~selectively~~ activate a G1 or S phase checkpoint in cancerous cells, but wherein said checkpoint activator is not toxic to and does not effect the viability of non-cancerous cells in said subject;

wherein said checkpoint activator is not β-lapachone.

36-37. (Cancelled)

38. (Previously Presented) The method of claim 35, wherein said checkpoint activator inhibits cellular proliferation.

39. (Previously Presented) The method of claim 35, wherein said checkpoint activator induces apoptosis.

40-42. (Cancelled).

43. (Previously Presented) The method of claim 35, wherein said checkpoint activator is selected from the group consisting of consisting of 3,4-dihydro-2,2-dimethyl-3-(3-methyl-2-butenyl)-2H-naphtho[1,2-b]pyran-5,6-dione, 3,4-dihydro-2,2-dimethyl-2H-naphtho[1,2-b]thiopyran-5,6-dione and 3,4-dihydro-4,4-dimethyl-2H-naphtho[1,2-b]thiopyran-5,6-dione.

44. (Previously Presented) The method of claim 35, wherein said subject is human.

45. (Previously Presented) The method of claim 35, wherein said checkpoint activator is administered parenterally.

46. (Previously Presented) The method of claim 35, wherein said checkpoint activator is administered intravenously.

47. (Previously Presented) The method of claim 35, wherein said checkpoint activator is administered orally.

48. (Previously Presented) The method of claim 35, wherein said checkpoint activator is administered topically.

49. (Previously Presented) The method of claim 35, wherein said checkpoint activator is administered in combination with a chemotherapeutic agent

50. (Previously Presented) The method of claim 49, wherein said chemotherapeutic agent is selected from the group consisting of microtubule targeting drugs, topoisomerase poison drugs and cytidine analogue drugs.

51. (Previously Presented) The method of claim 49, wherein said chemotherapeutic agent is selected from the group consisting of paclitaxel, lovastatin, mimosine, tamoxifen, gemcitabine, araC, 5-fluorouracil (5-FU), methotrexate (MTX), docetaxel, vincristin, vinblastin, nocodazole, teniposide, etoposide, adriamycin, epothilone, navelbine, camptothecin, daunonibicin, dactinomycin, mitoxantrone, amsacrine, epirubicin and idarubicin.

52. (Cancelled)

53. (Previously Presented) A method of inducing apoptosis of cancer cells in a subject, wherein said cancer is prostate cancer, colon cancer, breast cancer, pancreatic cancer or lung cancer, comprising administering a G1 or S phase checkpoint activator to subject in need thereof, wherein said checkpoint activator:

a) does not damage DNA and does not stabilize microtubules; and

b) is administered ~~such that a~~ to activate a G1 or S phase checkpoint ~~is activated~~ and to induce apoptosis ~~is induced~~ in cancer cells but wherein the checkpoint activator is not toxic to and does not affect the viability of non-cancerous cells in said subject,

wherein said checkpoint activator is not β-lapachone.

54-72. (Cancelled)

73. (Currently Amended) The method of claim 1, wherein said checkpoint activator is an orthonapthoquinone.

74. (Currently Amended) The method of claim 35, wherein said ~~compound~~ checkpoint activator is an orthonapthoquinone.

75. (New) The method of claim 1, wherein the G1 or S phase checkpoint activator is administered in combination with another G1 or S phase checkpoint activator.

76. (New) The method of claim 35, wherein the G1 or S phase checkpoint activator is administered in combination with another G1 or S phase checkpoint activator.